remarks, Applicant submits that the rejections have been overcome, and respectfully requests reconsideration of the outstanding Office Action and allowance of the present application.

Interview with Examiner Alvo

Applicant gratefully acknowledges the courtesy extended to their representative by Examiner Alvo in a personal interview. In the interview, Applicant clarified that the term "beetle mallet roll" was the result of a translational error, and that the mallet rolls referred to in the instant application can be structured as conventional hammer rolls. Moreover, Applicant noted that, in contrast to the applied art, the instant invention is directed to a system in which paper stock is dewatered into a highly consistent plug of stock, and, to ensure homogeneous dispersing in the disperser, the plug of stock is first processed in a mallet roll that breaks up the plug.

The Examiner correctly noted that the claims did not specifically identify the term "plug" and that the claims do not specifically identify whether it is paper stock or wood pulp that is being acted upon. However, Applicant pointed out that the applied documents specifically identify the product being processed, and that, as the documents process different products (or states of the products), it would not have been obvious to combine the documents in the manner asserted, as is further discussed, *infra*.

Traversal of Rejection Under 35 U.S.C. § 112, Second Paragraph

As set forth in the interview, Applicant acknowledges that the mallet roll disclosed in the instant application are structurally similar to what are conventionally referred to as

hammer rolls, and that the "mallet" *per se* would not necessary differ structurally from the "hammer."

Traversal of Rejection Under 35 U.S.C. § 103(a)

1. *Over WO '769 in view of FR '048 or FR '289*

Applicant traverses the rejection of claims 1, 5 - 7, and 13 - 16 under 35 U.S.C. § 103(a) as being unpatentable over WO 96/18769 [hereinafter "WO '769"] in view of French Patent Application No. 1,239,047 [hereinafter "FR '047"] or French Patent Application No. 2,364,289 [hereinafter "FR '289"]. The Examiner asserts that WO '769 shows a system delivering an aqueous stock, pressing out water to form a highly consistent stock, introducing the stock in a predisperser to loosen and distribute the stock, transporting the stock from the predisperser to a second disperser, but fails to disclose a mallet roll. The Examiner further asserts that FR '047 discloses that a disk disperser and a mallet roll are alternative apparatuses for dispersing stock, that FR '289 shows a mallet roller dispersing stock, and that it would have been obvious to modify WO '769 to change the disk disperser to a mallet roll. The Examiner has also asserted that, since WO '769 discloses that the grinder is formed by disperser disks, it would have been obvious to replace the disperser of FR '047, and then to modify the disperser of FR '047 with the kneader of FR '047. Applicant traverses the Examiner's assertions.

As has been previously discussed, the present invention is directed to process in

which, after the removal of water from an aqueous fibrous paper stock to form a highly consistent coarse paper stock, the highly consistent stock is loosened and distributed by introducing the highly consistent stock into an effective area of a mallet roll having circulating mallets, thereby breaking up the highly consistent stock, and subsequently dispersing the loosened and distributed highly consistent stock in a dispersing machine. Applicant submits that no proper combination of the applied documents teaches or suggests the above-noted features.

Applicant notes that WO '769 discloses a device for grinding a particulate material, which includes a grinder and a disperser. Further, WO '769 discloses that the grinder can be a disc disperser, and, on page 2, second full paragraph of WO '769, it is disclosed that the grinder is utilized to produce particles "that are so small" that rapid heating of the particles is possible. Moreover, the third and fourth full paragraphs of page 2 of WO '769 discloses that this disperser (grinder) is used as a rapidly rotating shredder, such that "the size of the pulp particles will be reduced" in order to enable rapid and thorough heating of the reduced sized particles.

Because WO '769 fails to teach or suggest the use of a mallet roll, as recited in at least independent claim 1, the Examiner has applied FR '047 for purportedly disclosing that a mallet roll and a disc disperser are known alternatives for each other, and, therefore, that it would have been obvious to replace the grinder of WO '769, which can be a disc disperser,

with a mallet roll.

In contrast to WO '769, FR '047 is directed to a process for bleaching and kneading stock. In this regard, two alternative kneading devices are depicted, i.e., a horizontal and vertical arrangement. Moreover, as a further option, FR '047 discloses that a disperser can be utilized in place of the kneading devices.

Applicant notes that the Examiner has mistaken the kneading devices of FR '047 for a mallet roll. In particular, the kneading devices (as well as the disperser) of FR '047 are structured to knead the stock suspension, i.e., to massage or mix the stock, whereas a mallet roll, as disclosed in the instant application is directed to breaking up a plug of highly consistent stock. Further, Applicant notes that FR '047 fails to provide any teaching or suggestion that the kneading devices (or the alternative disperser) are structured or arranged to reduce particle size, as is the purpose of the grinder/disperser of WO '769, and, in fact, teaches against any such interpretation since the kneading devices are structured merely to knead/mix the stock.

Thus, because the kneader/disperser of FR '047 is structured and utilized for a wholly different purpose than the grinder/disperser of WO '769, Applicant submits that it would not have been obvious to one ordinarily skilled in the art to modify WO '769 in the manner asserted by the Examiner. Further, Applicant submits that, even assuming, *arguendo*, that it would have been obvious to substitute the kneader/disperser of FR '047 for the

grinder/disperser of WO '769, which Applicant submits that it would not, because the kneader/disperser is not structured to shred or reduce particle size, the asserted modification would have been contrary to the express disclosure and intended operation of WO '769, which requires that particle size be reduced to ensure rapid and thorough heating.

Therefore, Applicant submits that the art of record fails to provide any teaching or suggestion for combining WO '769 and FR '047 in the manner asserted by the Examiner. Moreover, because the assertedly alternative devices are utilized for wholly distinct purposes, Applicant submits that the only reasonable rationale for combining the art of record in the manner set forth by the Examiner is for a review of Applicant's disclosure and the use of improper hindsight in recreating Applicant's invention. Thus, Applicant submits that the asserted combination of documents is improper and renders the rejection improper.

Applicant further notes that the Examiner alternatively applied FR '289 for purportedly showing a mallet roll for dispersing paper stock, and asserting that it would have been obvious to replace the grinder/disperser of WO '769 with the mallet roll of FR '289.

Contrary to the Examiner's assertions, FR '289 does not process "paper stock" as asserted by the Examiner, but instead is directed to a system for treating woodchips (*copeaux*). Applicant notes that it is well known that woodchips get their relatively high degree of strength from the natural strength of the wood, and that the woodchip refiner of FR '289 utilizes two rotating refiner discs, thereby breaking up the woodchips into smaller chips.

This device operates to chop the wood chips into smaller chips.

Thus, while both FR '289 and WO '769 are generally utilized to break up a particular product into pieces, Applicant notes that woodchips, as refined or chopped in FR '289, and particulate matter in a suspension, as ground or shredded in WO '769, are wholly distinct materials, and that there is no teaching or suggestion that such different materials being processed in different manners would be processed in a same or common device.

Notwithstanding that WO '769 indicates that the particulate matter can include wood fiber pulp in the suspension, Applicant notes that, while the wood fiber pulp treated in WO '769 can be formed as the result of a process such as FR '289 along with additional processing, e.g., delignification and the addition of water to form a suspension, it would not have been obvious to one ordinarily skilled in the art to modify the grinder/disperser of WO '769 with the refinder/chopper of FR '289.

Moreover, Applicant notes that the blades of FR '289 are rotated at high speed such that the woodchips falling into the chute with the rotating blades are chopped up into smaller chips. Thus, while it is apparent that these rotating blades of FR '289 would chop/refine solid matter into smaller pieces, there is no teaching or suggestion that such blades rotating within a fibrous suspension would reduce the size of the particulate matter in the suspension, which is the intention of WO '769.

Further, Applicant notes that, as the suspension to be processed in WO '769 is a rather

thick suspension, it is not apparent that the blade system of FR '289, which is intended to be operated in the air, would be able to generate the necessary force to process the particles in the suspension when operated within the WO '769 suspension.

Therefore, Applicant submits that the art of record fails to provide any teaching or suggestion for combining WO '769 and FR '289 in the manner asserted by the Examiner. Moreover, because the assertedly alternative devices are utilized for processing wholly distinct materials, Applicant submits that the only reasonable rationale for combining the art of record in the manner set forth by the Examiner is for a review of Applicant's disclosure and the use of improper hindsight in recreating Applicant's invention. Thus, Applicant submits that the asserted combination of documents is improper and renders the rejection improper.

Still further, Applicant notes that none of the applied documents teach or suggest a mallet roll having circulating mallets extending from a rotating shaft which cooperate with fixed peripheral impact sections, thereby breaking up the highly consistent stock passing between the mallets and the fixed peripheral impact sections, as recited in at least independent claim 1.

In this regard, it is noted that it is undisputed that WO '769 certainly does not disclose a mallet roll. Moreover, while the kneading device of FR '048 is structurally similar to the recited mallet roll, FR '048 is operated in a manner in which a suspension enters and exits

the device, and in between the suspension is kneaded/mixed. Thus, there is certainly no suggestion that it would have been obvious to utilize the kneading device of FR '048 to break up highly consistent stock in the manner recited in at least independent claim 1.

Still further, while FR '289 discloses rotating blades for breaking up wood chips, Applicant submits that the applied art fails to identify the problem to be addressed by the present invention, i.e., that the dewatered highly consistent stock is in the form of a plug which does not enable optimum dispersing in the disperser. Thus, the art of record fails to provide any teaching or suggestion for utilizing a device such as FR '289 in combination with a disperser, in the manner recited in at least independent claim 1.

Accordingly, Applicant submits that, as none of the applied documents teaches or suggests a mallet roll arranged to break up highly consistent stock prior to forwarding the same to a disperser device, no proper combination of the applied art teaches or suggests the combination of features recited in at least independent claim 1.

Accordingly, Applicants request that Examiner reconsider and withdraw the rejection of at least independent claim 1. Further, Applicants submit that claims 5 - 7 and 13 - 16 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicants submit that no proper combination of WO '769 and FR '047 or FR '289 teaches or suggests, *inter alia*, the mallet roll is essentially horizontally positioned, and

said process further comprises introducing the fibrous stock into the effective area of the mallet roll from above, as recited in claim 5; a worm extruder assists in the pressing of water out of the aqueous fibrous paper stock, as recited in claim 6; a transport direction in the worm extruder is essentially horizontal and an axis of the rotating shaft of the mallet roll is essentially horizontal and substantially perpendicular to the worm extruder transport direction, as recited in claim 7; dropping the fibrous stock, after passing the mallet roll, into a screw conveyor and centrally introducing the dropped fibrous stock into the dispersing machine via the screw conveyor, as recited in claim 13; heating the highly consistent fibrous stock while it is located between dispersing fittings of the dispersing machine, as recited in claim 14; introducing steam between the dispersing fittings and into the highly consistent fibrous stock, as recited in claim 15; and the dispersing fittings include a primary dispersing area and a ring shaped heating zone arranged radially inside of the primary dispersing area, and said process comprises introducing the steam into the ring shaped heating zone to heat the highly consistent fibrous stock, as recited in claim 16.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 1, 5 - 7 and 13 - 16 under 35 U.S.C. § 103(a) and indicate that these claims are allowable.

2. *Over WO '769 in view of FR '048 or FR '289 and further in view of DE '653*

Applicant traverses the rejection of claims 2 - 4 under 35 U.S.C. § 103(a) as being

unpatentable over WO '769 in view of FR '047 or FR '289 and further in view of German Patent Application No. 197 12 653 [hereinafter "DE '653"]. The Examiner asserts that, while WO '769 does not provide specifics about the disperser, DE '653 shows details of a disperser, and that it would have been obvious to modify the asserted combination of documents to include the details of the disperser of DE '653. Applicant traverses the Examiner's assertions.

Applicants note that, as DE '653 is directed to the dispersing machine *per se*, this document fails to provide any teaching or suggestion of the subject matter noted above as deficient in the asserted combination of WO '769 and FR '047 or FR '289.

In particular, Applicants note that DE '653 fails teach or suggest the requisite motivation or rationale for combining the above-noted documents in the manner asserted by the Examiner. That is, DE '653 fails to suggest that it would have been obvious to replace a heatable grinder such as disclosed by WO '769 with either a kneading machine or rotating blades, since neither secondary document suggests reducing pulp size to facilitate heating.

Further, Applicants submit that, like the other applied documents, DE '653 fails to teach or suggest a mallet roll having circulating mallets *which cooperate with fixed peripheral impact sections*, thereby *breaking up the highly consistent coarse fibrous stock passing between the mallets and fixed peripheral impact sections*, as recited in at least independent claim 1. Accordingly, Applicants submit that no proper combination of

WO'769, FR '047 or FR '289, and DE '653 teaches or suggests the combination of features recited in at least independent claim 1.

Further, Applicants submit that claims 2 - 4 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicants submit that no proper combination of WO '769, FR '047 or FR '289, and DE 653 teaches or suggests, *inter alia*, the dispersing machine comprises at least two dispersing fittings with several lines of teeth, the at least two dispersing fittings being arranged so that the several lines of teeth are intermeshed and spaced at a distance from each other, and said process further comprises rotating the at least two dispersing fittings relative to each other, as recited in claim 2; introducing steam into the highly consistent fibrous stock while it is located between the dispersing fittings, whereby the highly consistent fibrous stock is heated, as recited in claim 3; the dispersing fittings include a primary dispersing area and a ring shaped heating zone arranged radially inside of the primary dispersing area, and said process comprises introducing the steam into the ring shaped heating zone, as recited in claim 4.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 2 - 4 under 35 U.S.C. § 103(a) and indicate that these claims are allowable.

3. *Over WO '769 in view of FR '048 or FR '289 and further in view of Davenport, with or without DE '653*

Applicant traverses the rejection of claims 8 - 12 under 35 U.S.C. § 103(a) as being unpatentable over WO '769 in view of FR '047 or FR '289 and further in view of DAVENPORT (U.S. Patent No. 6,045,070) with or without DE '653. The Examiner asserts that DAVENPORT uses a mallet roller to predisperse and shred paper stock to pieces less than 6 in prior to a disk disperser to reduce the energy required for dispersing, and that it would have been obvious to modify the asserted combination of documents to include the features of DAVENPORT with or without the features of DE '653. Applicant traverses the Examiner's assertion.

As discussed above, DE '653 is directed to the dispersing machine *per se*, and, therefore, fails to provide any teaching or suggestion of the subject matter noted above as deficient in the asserted combination of WO '769 and FR '047 or FR '289.

Further, Applicants note that DAVENPORT discloses a shredding device for breaking up solids, however, in contrast to WO '769, Applicants note that the solids are then supplied to an agitatable receiving tank 16 before being sent to a grinder. However, like the other secondary documents of record, DAVENPORT fails to teach or suggest that the solids supplied by the grinder are reduced in size for ease of heating, as required by WO '769.

Accordingly, Applicants submit that the art of record fails to teach or suggest the necessary motivation or rationale for combining the above-noted documents in the manner asserted by the Examiner. That is, neither DAVENPORT nor DE '653 suggests that it would

have been obvious to replace the heatable grinder of WO '769 with either a kneading machine of FR '047 or rotating blades of FR '289.

Further, Applicants submit that, like the other applied documents, both DAVENPORT and DE '653 fail to teach or suggest a mallet roll having circulating mallets *which cooperate with fixed peripheral impact sections*, thereby *breaking up the highly consistent coarse fibrous stock passing between the mallets and fixed peripheral impact sections*, as recited in at least independent claim 1. Accordingly, Applicants submit that no proper combination of WO'769, FR '047 or FR '289, and DAVENPORT with or without DE '653 teaches or suggests the combination of features recited in at least independent claim 1.

Further, Applicants submit that claims 2 - 4 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicants submit that no proper combination of WO '769, FR '047 or FR '289, and DAVENPORT with or without DE 653 teaches or suggests, *inter alia*, rotating the mallets at a circumferential speed in a range between about 1 to 5 m/s, as recited in claim 8; rotating the mallets at a circumferential speed of between about 2 and 4 m/s, as recited in claim 9; calibrating the highly consistent fibrous stock between impact sections positioned at a distance from each other, as recited in claim 10; adjusting a maximum amount of calibrated fibrous stock pieces in the longitudinal direction to a size in a range between about 5 to 50 mm, as recited in claim 11; and

transferring a specific work amount of less than about 1kWh/t from the mallet roll to the fibrous stock, as recited in claim 12.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 8 - 12 under 35 U.S.C. § 103(a) and indicate that these claims are allowable.

Application is Allowable

Thus, Applicants respectfully submit that each and every pending claim of the present invention meets the requirements for patentability under 35 U.S.C. §§ 112, 102 and 103, and respectfully request the Examiner to indicate allowance of each and every pending claim of the present invention.

Authorization to Charge Deposit Account

If for any reason a check including the amount for any necessary fees is not associated with this file, the Commissioner is authorized to charge to Deposit Account No. 19 - 0089 the amounts identified herein for the missing check, as well as any necessary fees not explicitly identified, including any extensions of time fees required to place the application in condition for allowance by Examiner's Amendment, in order to maintain pendency of this application.

CONCLUSION

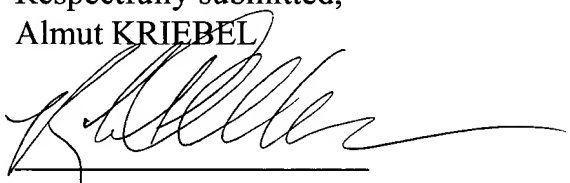
In view of the foregoing, it is submitted that none of the references of record, either taken alone or in any proper combination thereof, anticipate or render obvious the Applicants'

invention, as recited in each of claims 1 - 16. The claims have been amended to eliminate any arguable basis for rejection under 35 U.S.C. § 112. In addition, the applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Further, any amendments to the claims which have been made in this response and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate.

Respectfully submitted,
Almut KRIEBEL



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